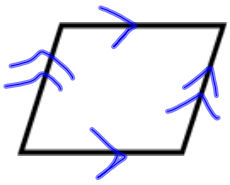
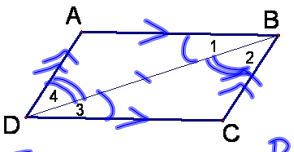
8-2 Parallelograms

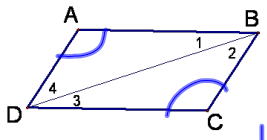
Parallelogram-quadrilateral with both pairs of opposite sides parallel





Given: ▱ABCD
Prove: $\overline{AB} \cong \overline{CD}$
$\overline{AD} \cong \overline{BC}$

S.	R.
① ▱ABCD	① Given
② $\overline{AB} \parallel \overline{DC}$, $\overline{AD} \parallel \overline{BC}$	② def of ▱
③ $\angle 1 \cong \angle 3$, $\angle 2 \cong \angle 4$	③ Alt Int ∠s thm
④ $\overline{BD} \cong \overline{BD}$	④ Reflexive
⑤ $\triangle ABD \cong \triangle CDB$	⑤ ASA
⑥ $\overline{AB} \cong \overline{CD}$, $\overline{AD} \cong \overline{BC}$	⑥ CPCTC



Given: ▱ABCD
Prove: $\angle A \cong \angle C$

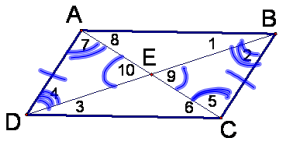
① - ⑤ from previous proof	
⑥ $\angle A \cong \angle C$	⑥ CPCTC

Theorem 8.3-Opposite sides of a parallelogram are congruent

Opp sides ▱ ≅

Theorem 8.4-Opposite angles of a parallelogram are congruent

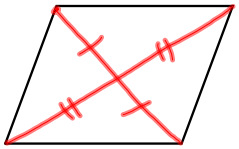
Theorem 8.5-Consecutive angles of a parallelogram are supplementary

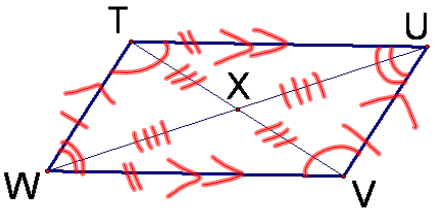


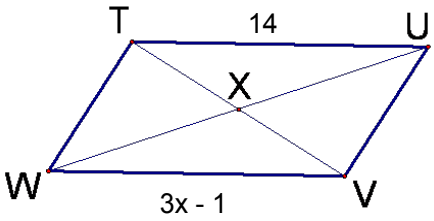
Given: $\square ABCD$
Prove: $\overline{AE} \cong \overline{CE}$
$\overline{DE} \cong \overline{BE}$

S.	R
① ~	① Given
② $\angle 10 \cong \angle 9$	② Vert $\angle$s $\cong$
③ $\overline{AB} \parallel \overline{DC}$; $\overline{AD} \parallel \overline{BC}$	③ def of $\square$
④ $\angle 7 \cong \angle 5$; $\angle 4 \cong \angle 2$	④ Alt Int $\angle$s thm
⑤ $\overline{AD} \cong \overline{BC}$	⑤ Opp sides $\square$ are $\cong$
⑥ $\triangle AED \cong \triangle CEB$	⑥ AAS
⑦ $\overline{AE} \cong \overline{CE}$ $\overline{DE} \cong \overline{BE}$	⑦ CPCTC

Theorem 8.6-Diagonals of a parallelogram bisect each other







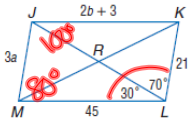
TX = 8
XV = .5y

$8 = .5y$
$16 = y$

$3x - 1 = 14$
$3x = 15$
$x = 5$

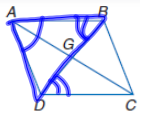
Use $\square JKLM$ to find each measure or value if $JK = 2b + 3$ and $JM = 3a$.

7. $m\angle MJK$
8. $m\angle JML$
9. $m\angle JKL$
10. $m\angle KJL$
11. a
12. b



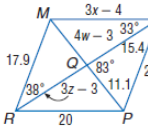
Complete each statement about $\square ABCD$. Justify your answer.

16. $\angle DAB \cong$? $\angle DCB$
17. $\angle ABD \cong$? $\angle CDB$
18. $\overline{AB} \parallel$? $\overline{CD}$
19. $\overline{BG} \cong$? $\overline{GD}$
20. $\triangle ABD \cong$? $\triangle CDB$
21. $\angle ACD \cong$? $\angle CAB$



ALGEBRA Use $\square MNPR$ to find each measure or value.

22. $m\angle MNP$
23. $m\angle NRP$
24. $m\angle RNP$
25. $m\angle RMN$
26. $m\angle MQN$
27. $m\angle MQR$
28. x
29. y
30. w
31. z



Use $\square JKLM$ to find each measure or value if $JK = 2b + 3$ and $JM = 3a$.

7. $m\angle MJK$
8. $m\angle JML$

Complete each statement about $\square ABCD$. Justify your answer.

16. $\angle DAB \cong$?
17. $\angle ABD \cong$?
18. $\overline{AB} \parallel$?
19. $\overline{BG} \cong$?
20. $\triangle ABD \cong$?
21. $\angle ACD \cong$?

ALGEBRA Use $\square MNPR$ to find each measure or value.

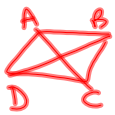
22. $m\angle MNP$
23. $m\angle NRP$
24. $m\angle RNP$
25. $m\angle RMN$
26. $m\angle MQN$
27. $m\angle MQR$
28. x
29. y
30. w
31. z

Find the point where the diagonals intersect.

ABCD is a parallelogram

A(5, -3) B(3, 5) C(-2, 7) D(0, -1)

Use midpt formula



$M\left(\frac{3}{2}, 2\right)$

HW
p. 518-519
3-16, 23-28,
33-36